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ANNOTATED BIBLIOGRAPHY ON IRON ORE - 1992

Prepared by the UNCTAD secretariat

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SURVEY OF THE QUALITY AND USEFULNESS OF UNCTAD PUBLICATIONS AND OF THEIR END-USERS

The UNCTAD secretariat, in the context of its programme evaluation activities and in response to intergovernmental requests, is seeking the opinions of end-users in order to have basic data for assessing the quality, usefulness and effectiveness of *inter alia* its research reports and publications. As the success of such an exercise is critically dependent on an adequate rate of response we should appreciate it if you would take time to answer the questions below and submit any other comments that you may have concerning the current document.

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5. **How do you rate the document as regards:**

Its usefulness to your work *(tick one box)*

Extremely useful ( ); Very useful ( ); Useful ( ); Marginally useful ( ); Not at all ( ).

Its quality, in terms of the following aspects *(tick one box in each case)*:

	Outstanding	*Excellent*	*Good*	*Adequate*	*Poor*
Presentation and readability	( )	( )	( )	( )	( )
Originality of ideas	( )	( )	( )	( )	( )
Wealth of information	( )	( )	( )	( )	( )
Up-to-date information	( )	( )	( )	( )	( )
Technical accuracy	( )	( )	( )	( )	( )
Quality of analysis, including objectivity	( )	( )	( )	( )	( )
Validity of conclusions	( )	( )	( )	( )	( )
Clarity of recommendations	( )	( )	( )	( )	( )
Comprehensiveness of coverage	( )	( )	( )	( )	( )

6. **Other observations** *(if any)* . . . . . .

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Finally, we would appreciate it if you could provide the following information about yourself:

Name . . . . . .Occupation/Functional title . . . . . .

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Your answers are for internal use and will be kept confidential. Thank you for your co-operation.

Please forward the questionnaire to : PROGRAMME CO-ORDINATION AND EVALUATION UNIT
EXECUTIVE DIRECTION AND MANAGEMENT
UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT
PALAIS DES NATIONS – CH-1211 GENEVA 10

INTRODUCTION

1. This annotated bibliography contains summaries of relevant studies and/or information about the activities carried out by UNCTAD and other international organizations, as well as in individual countries, in the field of iron ore or related issues considered to be of interest to iron ore producers and consumers. It covers the year 1991 and the first half of 1992.

2. The present document was prepared in response to the wish of the Intergovernmental Group of Experts on Iron Ore. The Group decided that the "Annotated bibliography on iron ore" should be regularly updated and that this subject should be maintained as a regular item on its agenda. For the preparation of this 1992 version of the bibliography, the UNCTAD secretariat requested all States members of UNCTAD, as well as concerned international organizations, to provide copies of recent studies and any other relevant information on iron ore, iron and steel matters. The information provided herewith is based on the replies received as of 20 July 1992, and complemented with information and studies available in the UNCTAD secretariat.

Part I

RELEVANT ACTIVITIES AND STUDIES OF INTERNATIONAL ORGANIZATIONS

1. UNCTAD

1.1 Commodities Division

3. The main UNCTAD activity on iron ore is linked to the work of the Intergovernmental Group of Experts on Iron Ore. This Group is composed of representatives of Governments and industry from both iron ore producing and consuming countries, as well as from relevant international organizations. Its main purpose is to provide a forum for a regular producer–consumer dialogue on iron ore matters. Participation is open to representatives from all UNCTAD member countries and the participation of industry is highly encouraged. The annual sessions of the Expert Group are held for three days, normally in October at the Palais des Nation in Geneva.

1.1.1 Review of the current market situation and outlook for iron ore – 1992

TD/B/CN.1/IRON ORE/3, Geneva, August 1992
For general distribution. Issued in the six United Nations official languages (Arabic, Chinese, English, French, Russian and Spanish).

4. This report describes developments which took place in the world iron ore market during the previous year and the first half of the current year. It is used as a background document to facilitate a regular exchange of views between both iron ore producing and consuming countries involved in the work of UNCTAD's Intergovernmental Group of Experts on Iron Ore. Featured are recent developments influencing demand for iron ore such as the production of steel, pig iron and sponge iron (DRI), the ferrous scrap market and iron ore stock movements. The supply capacity at the regional and global levels, as well as the financing and investments plans of the iron ore mining industry, are also dealt with. The report examines international trade issues relating to the volume and value of international trade, prices, freight rates and transportation costs for iron ore. Technological and environmental issues are also addressed. The last section deals with the short–term outlook for the iron ore market.

1.1.2 Annotated bibliography on iron ore – 1992

TD/B/CN.1/IRON ORE/4, Geneva, August 1992
For general distribution in all United Nations official languages.

5. The present bibliography is prepared annually for submission to UNCTAD's Intergovernmental Group of Experts on Iron Ore. Its main purpose is to inform iron ore

producers and consumers about studies and activities currently undertaken worldwide by international institutions and in individual countries.

1.2 Division for Data Management

1.2.1 Iron ore statistics 1982–1991

TD/B/CN.1/IRON ORE/2, Geneva, August 1992
For general distribution in all United Nations official languages.

6. This statistical compendium is issued under the UNCTAD regular work programme for iron ore, and has appeared annually since 1984. This compendium, which complements the review of the market situation and outlook,is published with a view to improving market transparency. The world statistical series cover the last 10 years and include data at the country level for: production of iron ore in natural weight and in estimated iron content, and for certain countries by product; production and exports of pellets; production of sinter; volume of exports and imports of iron ore; a network of iron ore exports by major destinations, and imports by origin/destination for the major importing markets; value of exports and imports of iron ore in United States dollars; apparent and actual consumption of iron ore, as well as actual consumption by product; stocks of producing and consuming countries by product; production of pig iron and sponge iron; consumption, imports and exports of ferrous metallics; and crude steel production.

1.2.2 Trust fund project on iron ore information.

7. Following the suspension of activities of the Association of Iron Ore Exporting Countries (APEF) as of 1 June 1989, the Governments of certain countries, namely Australia, Canada, India, United States and Venezuela, and the Commission of the European Economic Community, decided to establish a trust fund project on iron ore information administrated by UNCTAD. The purpose was to continue the collection and dissemination of data relating to iron ore formerly undertaken by APEF. This project is financed by voluntary contributions from interested Governments and by the revenues from the sales of publications. The trust fund project, initially to run until the end of 1990, has been extended, and donor Governments will decide about its future by the end of 1992. The following publications were issued under this project:

- Iron Ore Statistics (July and October 1989; June and October 1990, 1991, and 1992).

- Market Report on Iron Ore (March 1990, 1991 and 1992).

1.2.3 Monthly Commodity Price Bulletin – 1991

Annual subscription 03600P – (ISSN 0251–6438)

8. This bulletin is issued monthly. It is available for an annual subscription which also covers the occasional publication of a supplement. The explanatory notes, descriptions and sources are published in English, French and Spanish. The bulletin contains historical series of monthly, quarterly and annual average prices for the current and past three years for all major commodities including minerals, ores and metals, of which iron ore.

1.3 Shipping Division

9. Under the work programme of UNCTAD's Committee on Shipping, a number of specialized reports, technical assistance projects and training activities, which might be of interest to those involved in the seaborne trade of iron ore, are carried out annually.

1.3.1 Review of Maritime Transport 1990

TD/B/C.4/340, Sales No. E.9.II. D16, Geneva, September 1991
Available in all six official languages.

10. This annual report is usually issued in September and examines developments in international seaborne trade that occurred during the previous year. It covers world developments relating to the world fleet, shipbuilding, ports, freight markets including for iron ore, multimodal transport, technological issues, as well as other major international events such as the status of negotiations for the different United Nations Conventions on: a Code of Conduct for Liner Conferences; Conditions for Registration of Ships; International Multimodal Transport of Goods, etc.

1.3.2 Other reports

11. Other reports issued in 1991/2, which might be of particular interest to iron ore producers and consumers are:

- Development and improvement of ports

  TD/B/C.4/AC.7/13, Geneva, January 1992
  For general distribution in all United Nations official languages.

12. This report presents the principles of modern port management and organization. It was prepared for the Ad Hoc Intergovernmental Group of Port Experts with a view to advising senior and especially middle port managers in developing countries. The study forms part of an overall UNCTAD programme which comprises many publications on the subject of ports.

- Port marketing and the challenge of the third generation port

  TD/B/C.4/AC,7/14, Geneva, 1992
  For general distribution in all United Nations official languages.

13. This report has been prepared to focus on the development of the commercial function, production of the port area and the concept of the port as a service centre. Three questions are raised and attempts are made to answer them: (a) What is the new role of ports today? (b) Why should ports be engaged in this new role? and (c) How can ports play this new role? The study also describes port marketing activities and techniques by the introduction of a port community concept.

2. OTHER UNITED NATIONS ORGANIZATIONS OR SPECIALIZED AGENCIES

2.1 Economic Commission for Africa (ECA)

14. Further to the study The iron ore industry in Africa during the 1980s and prospects for the 1990s, published in 1991 and already mentioned in that year's bibliography, no other publication or activity in the iron ore field had been undertaken by the ECA since.

2.2 Economic Commission for Europe (ECE)

15. The Geneva-based United Nations Economic Commission for Europe, within the framework of its Working Party on Steel, organizes meetings, seminars, and study tours and also undertakes studies in the field of iron and steel. From June 1991 to June 1992, its main studies and activities were:

2.2.1 The Steel Market in 1990

ECE/STEEL/73, Sales No. E.91.II.E.35. Geneva, 1991.
Available in English, French and Russian.

16. This publication covers steel developments in 1990. It presents an annual review of the steel market and the main factors conditioning the supply of and demand for steel products in Eastern and Western Europe, North and South America, Japan, Australia, China and most of the emerging steel-producing countries of the Middle and Far East. It describes the past evolution and prospects of the main macroeconomic trends, the main steel-consuming sectors, the steel trade, the main raw materials such as iron ore, scrap, coal, etc. The 1991 edition of this report is expected to be published in October 1992.

2.2.2 Iron and steel scrap

ECE/STEEL/74, Fifth updating, Geneva, 1991
Available in English, French and Russian.

17. This study focuses on the significance and influence of scrap for the development of the iron and steel industries. It is basically made up of statistical tables, but short texts have been included to facilitate the understanding of the main trends from 1970 to 1990. Data is presented for scrap availability, use and trade, as well as total scrap balances by countries.

2.2.3 Other ECE activities

18. The ECE normally organizes study tours for visits to the iron and steel industry in major steel producing countries. In May 1991 a study tour of the French iron and steel industry was held, as reported in the previous bibliography. For 1992, a study tour had been scheduled in Yugoslavia but was indefinitely postponed.

19. In May 1992 an ECE seminar on the "Restructuring and management techniques in steel industries in countries in transition towards market-economy conditions" was held in Dabrowa, Poland. Representatives from 16 countries and eight international organizations participated in a lively exchange of opinions concerning the way ahead for the steel industry in the Eastern European countries. For 1993, preparations are being made for a seminar on "Metallurgy and Ecology", scheduled for May 1993, in Nancy, France.

2.3 Economic Commission for Latin America and the Caribbean (ECLAC)

20. In 1991, none of the three divisions which usually undertake studies on minerals and metals, namely, the International Trade and Development, Natural Resources and Energy, and Industry and Technology had carried out any studies on iron ore or had plans to do so in 1992. The relatively sparse efforts of ECLAC in this field are primarily due to its close collaboration with ILAFA (Latin American Iron and Steel Instituto), whose headquarters are located in Santiago, Chile.

2.4 Economic and Social Commission for Asia and the Pacific (ESCAP)

21. No information has been received from ESCAP about publications on iron ore issues during 1991.

2.5 United Nations Division of Natural Resources and Energy, New York

22. No particular publication on iron ore or related issues was prepared by this Division in 1991.

2.6 United Nations Department of Technical Cooperation for Development (UNDTCD)

23. There is no record of studies or publications by UNDTCD on iron ore in recent years. However, its activities in the field of mining and environment may be of interest to the iron ore industry. The main event in 1991 was the collaboration for the International Roundtable on Mining and Environment, which led to the drafting of guidelines (presented in Part III below). At present, the Minerals Resources Branch is envisaging the following activities regarding mining and minerals development:

(i) promotion of the said guidelines among international development and financial agencies, industry representative, developing country governments' mineworkers and their associations, environmental NGOs especially those involved in activities related to United Nations Conference on Environment and Development (UNCED).

(ii) technical assistance to developing country Governments as regards the guidelines, including assistance to:

- formulate policy and enact legislation;

- undertake training programmes and educational activities;

- implement, monitor and enforce such guidelines;

- build up local individual and institutional capabilities for undertaking specific environmental measures in respect of mineral development;

2.7 United Nations Development Programme (UNDP)

24. In 1991 apparently no particular activity on iron ore was carried out by UNDP.

2.8 United Nations Industrial Development Organization (UNIDO)

25. Apparently no studies or activities dealing specifically with iron ore were undertaken by UNIDO in 1991.

2.9 International Trade Centre UNCTAD/GATT (ITC)

26. ITC's present programmes do not include export development and promotion of iron ore. No activities in this field were undertaken in 1991 or are planned for 1992.

2.10 International Labour Office (ILO)

27. The twelfth session of the ILO's Iron and Steel Committee was held in April 1992 in Geneva. Tripartite delegations representing governments, employers and workers from the 30 major developed and developing iron and steel producing countries participated in the session, and two reports were published:

2.10.1 Recent developments in the iron and steel industry

Report I, ILO, Geneva 1992 – ISBN 92-2-108125-7
Available in English, French and Spanish

28. This report consists of three parts. Part I reviews some of the main events in the world iron and steel industry including the impact of technological innovations on employment, changes in the age structure of the labour force, as well as wages and skill requirements. Part II consists of a summary of the information provided by 41 Governments concerning safety and health, the role of labour legislation and problems of freedom of association and trade union rights. Part III gives details of the steps taken by ILO to meet the requests made at previous meetings, and also describes other ILO activities related to the iron and steel sector.

2.10.2 Training in the iron and steel industry

Report II, ILO, Geneva 1992 – ISBN 92-2-108126-5
Available in English, French and Spanish

29. This report examines various aspects of training, retraining and skill development in the iron and steel industry, as well as the role of Governments, employers' and workers' organizations.

30. The Note on the proceedings of the Twelfth Session of the Iron and Steel Committee, which includes summaries of all the discussions and the texts of the conclusions and resolutions adopted by the Committee, was in preparation and is expected to be issued in November 1992.

3. OTHER INTERNATIONAL ORGANIZATIONS

3.1 World Bank

31. Publications issued by the World Bank during the first half of 1992 containing issues related to iron ore, iron and steel were the following:

3.1.1 Quarterly Review of Commodities Markets, Washington,

March 1992. Restricted distribution.

32. This paper is an office memorandum for external circulation prepared by the International Trade Division of the World Bank/International Finance Corporation. It briefly reviews market developments, including those for iron ore and steel, and presents a price index based on 33 non-fuel commodities.

3.1.3 Revision of Commodity Price Forecasts, Washington,

March 1992. Restricted distribution.

33. This memorandum for external distribution presents a set of tables of the latest forecasts of primary commodity prices, including iron ore. Projections cover the period from 1992 to 2005.

3.2 General Agreement on Tariffs and Trade (GATT)

34. The GATT secretariat has not published any specific study on iron ore, iron or steel. However, the annual report International Trade 1990-91, contains data on iron and steel (Volume II, pages 42-43 and 47-49). Moreover, the Uruguay Round negotiations on natural resource-based products, which include iron and steel in the list of additional products, take place within the framework of the market-access negotiations. Their objective is to liberalize trade in those products by reducing or eliminating tariffs and tariff escalation and non-tariff measures.

3.3 Organisation for Economic Cooperation and Development (OECD)

35. The OECD, through its Steel Committee, publishes regularly two annual reports in the iron and steel field, namely:

3.3.1 The Steel Market in 1991 and the Outlook for 1992

Sales No. ISBN 92-64-13677-0, Paris, July 1992
Available in English and French.

36. This report provides a detailed analysis of the steel market, pointing out the main features and market developments in the preceding year, as well as the outlook for the current and following year. It covers overall aspects related to steel supply, demand, trade and capacity, as well as developments in the steel market by area for both OECD and non-OECD countries. It also contains brief analyses and data regarding employment in the steel industry of the OECD countries.

3.3.2 The Iron and Steel Industry in 1990

Sales No. ISBN 92-64-03530-3, Paris, April 1992
Bilingual publication in English and French.

37. This annual report is basically a statistical compendium presenting about 30 tables containing data related to the iron and steel industry. Production, consumption and index prices of the raw materials used in iron and steel-making are also presented, mainly for iron ore, manganese ore, coke and ferrous scrap.

3.4 Commission of the European Economic Community (EEC)

38. The Commission of the European Communities did not publish any specific study on iron ore in 1991. However, the Commission research programme in the iron and steel field includes questions of preparation of raw materials, and in particular ore reduction. Recent EEC publications which might be of interest to iron ore producers and consumers are listed below.

3.4.1 Future of the European Coal and Steel Community Treaty

SEC (91) 407 Final, 15 March 1991

39. In this communication, the Commission stated its decision to let the ECSC Treaty expire at the end of its term in 2002. Therefore, while the Commission is already preparing for the phasing-out of the ECSC Treaty, it is at the same time working on the gradual inclusion of the coal and steel sectors in the EEC framework.

40. The statistical office of the European Communities, EUROSTAT, located in Luxembourg, publishes regularly detailed statistical information on iron and steel for its 12 member countries. All the following publications are multi-language (seven languages) and can be purchased or obtained through subscription.

3.4.2 Iron and Steel Yearbook - 1991

41. This publication provides yearly statistics on the structure and the economic situation of the Community's iron and steel industry. It includes data on employment, size of enterprises, plants, crude steel, iron and scrap balances, production of iron ore, pig iron, crude steel and finished steel and products, consumption of raw materials, external trade in scrap, etc.

3.4.3 Iron and Steel Monthly – with Quarterly Supplement

42. This publication presents the European Coal and Steel Community (ECSC) steel situation at a glance, including a monthly index of production of the Community's iron and steel industry, pig iron production, production and trade of steel products, as well as consumption and receipts of scrap.

3.5 European Free Trade Association (EFTA)

43. The EFTA secretariat had not undertaken any study or published any report concerning iron ore in 1991. Its activities on iron ore have been limited to financial contributions to the work on "European Standardization for Iron and Steel" which is performed in close cooperation with the European Committee for Standardization (CEN).

3.6 Commonwealth Secretariat

44. In 1991, neither the Commonwealth secretariat nor the Commonwealth Fund for Technical Co-operation undertook any study on iron ore, iron or steel matters.

3.7 International Iron and Steel Institute (IISI)

45. The IISI is a non-governmental, non-profit research organization dealing with various aspects of the international steel industry, including its raw materials. IISI work is carried out through seven standing committees. More related to iron ore is the Committee on Raw Materials whose 1992 annual meeting was held in February in New Delhi, India. The Committee examines the short and medium-term prospects for steel-related commodities; recently its work has focused on coking coal, scrap and chrome-based ferro-alloys. In 1991, no particular publication on iron ore was issued by the IISI. However, in addition to its regular publications, some recent studies include:

3.7.1 Changing patterns of industrial development and the steel industry, Brussels, 1991 – English only.

46. This study assesses changes in the pattern of industrial development and economic structures since the early 1970s, in particular the technical innovations and changes in international trade relations. It consists of four volumes providing general analysis, as well as monographs for selected steel-producing countries from developed and developing nations.

3.7.2 IISI 25th Anniversary World Steel Map
Brussels, 1991

47. This is a full-colour planispheric world map showing 1990 crude steel consumption, production and consumption per capita in 56 countries.

3.7.3 Modern ironmaking - control and operation
Brussels, 1991 - English only

48. This publication present eight papers discussed at a technical session. It reviews the significant developments in blast furnace control and instrumentation in recent years as well as developments in the Corex process.

3.8 Latin American Iron and Steel Institute (ILAFA)

49. In Latin America, the major event for the iron ore, iron and steel industry is the Annual Congress of the Latin American Iron and Steel Industry organized by ILAFA. In 1991, the Congress was held in Rio de Janeiro, Brazil, and its proceedings have been published in Siderurgia Latinoamericana, the monthly technical review of ILAFA. The 1992 congress will take place in Caracas, Venezuela from 1 to 4 November. ILAFA also organizes technical seminars, undertakes major studies and regularly publishes detailed statistics on the Latin American iron ore, iron and steel industry. The following are its most recent publications:

3.8.1 The Latin American iron and steel industry in 1990/91 and its prospects,
Santiago, 1991
Bilingual: Spanish and English

50. This annual study analyses the main world economic developments, the situation in each Latin American country, and its linkage with the regional iron and steel industry as regards production, trade, investments and the overall world market situation.

3.8.2 Statistical yearbook of steelmaking and iron ore mining in Latin America - 1991,
Santiago, April 1992
Bilingual: Spanish and English.

51. This annual publication is now also available on diskettes. The latest edition presents statistical series for the period 1980-1991 for Latin American countries on production and exports of iron ore, steel production by processes, exports and imports of steel products by origin and destination, steel prices, the consumption of steel products and investments made by the Latin American iron and steel industry.

3.9 South-East Asia Iron and Steel Institute (SEASI)

52. SEASI organizes conferences, seminars and study tours in the region and also provides information services to its members. It publishes monthly newsletters, quarterly journals, and

an annual directory. The proceedings and technical papers presented at conferences and seminars are also usually published. In May 1992, the SEASI 36 Conference was held in Singapore, on the theme: "Manufacture and application of high quality steel bars and rods and their relevance to South East Asian mini mills".

3.10 Arab Iron and Steel Union (AISU)

53. AISU's main objective is to facilitate close and effective cooperation between its member countries with a view to furthering the development of the iron and steel industry in the Arab countries. To this end, AISU organizes congresses and seminars and publishes a monthly review, Arab Steel, with technical papers from the various seminars or with other relevant articles.

3.10.1 AISU International Symposium on Steel Scraps

54. This seminar was held in Algiers, Algeria, in April 1992 on the occasion of the 2nd Iron and Steel International Fair. About 200 people involved in the sector participated, including government representatives and top executives and technicians from most Arab countries. It was an important event to the Arab world, since discussions helped to identify the needs and potentialities of the region as regards scrap. Good research and technical papers favoured pragmatic discussions, which helped to orient important investment decisions currently being taken for the expansion, modernization and privatization of the iron and steel industry in a number of Arab countries. A major outcome of the seminar was the concrete decision taken by the Entreprise Nationale de Sidérurgie (SIDER) of Algeria, to construct a gas-based DRI plant to produce directly reduced iron to feed some new electric-furnace steelworks which had been planned in a number of countries in the region. As a follow-up, five regional iron and steel companies signed the agreement to develop Mauritania's El-Aouj pelletizing project, conceived to supply DRI pellets to meet regional demand.

55. At present, the Arab Iron and Steel union is organizing the Fourth International Iron and Steel Congress, which will be held in October 1992 in Morocco, with the objective of holding broad and constructive debate on the promotion and realization of common iron and steel projects.

3.11 African Iron and Steel Association (AISA)

56. This new-born association was created in December 1991, following a recommendation by, and with assistance from, UNIDO. At the Constitutive Assembly held in Algiers, government and industry representatives from Algeria, Angola, Congo, Ethiopia, Ghana, Mali, Mauritania, Nigeria, Senegal, Togo, Tunisia, Zambia and Zimbabwe participated. They agreed on the statutes and location of the Association. The headquarters of AISA will be in Nigeria, where the next General Assembly was scheduled to meet in July 1992 to elect its Secretary-General.

57. The setting up of the African Iron and Steel Association is expected to contribute to the implementation of the Lagos plan of action, elaborated under the "Industrial Decade for Development in Africa" and the "Priority Programme for African Economic Revival". AISA is working in close cooperation with the Arab Iron and Steel Union. The Studies Department of the AISU contributed with a study entitled "Approche d'Analyse Complexifiée pour un amorçage substantiel de l'Association Africaine du fer et de l'acier", which was prepared to assist the launching of the new organization.

3.12 American Iron Ore Association (AIOA)

58. This Association, which represents the iron ore industry of Canada and the United States, does not publish studies or articles on iron ore. However, the AIOA issues a comprehensive collection of detailed iron ore statistics of the iron ore industry in Canada the United States. The most recent issue in this series is: Iron Ore 1991, Ohio, United States, July, 1992.

Part II

RELEVANT STUDIES AND PUBLICATIONS COMMUNICATED BY GOVERNMENTS

Benin

59. The Government of Benin provided the summary of a study carried out by the Direction of Mineral and Geological Research concerning the development of the Loumbou-Loumbou deposits. The study concluded that there were two ways to exploit the country's iron ore deposits: first, to extract the ore and transform it into concentrates for sale; or secondly, to establish an iron and steel industry in Benin to use the ore and produce rolled steel products for the internal and/or external market. However, as the deposits are located far from the port of Cotonou, their exploitation can only be economically feasible within the framework of a sub-regional project under a cooperation scheme involving some of the neighboring countries, namely, Nigeria, Niger and Burkina Faso.

Brazil

60. The Brazilian Iron and Steel Institute (IBS) provided a long and comprehensive list of bibliographic references of documents on iron ore available in the Institute. IBS provides information services to its members on all technical and commercial aspects of interest to the iron and steel industry, including, upon request, a computerized search service.

Côte d'Ivoire

61. The Ministry of Mines and Energy sent a survey of the iron ore deposits in Côte d'Ivoire, and a summary report on the requirements and trade of iron and steel products. For the time being, iron ore is not produced in the country.

France

62. A recent publication has just been issued by the Chambre Syndicale des Mines de Fer de France entitled "Les Mines de Fer de Lorraine". This 255-page publication is divided into three parts: the historical evolution of the iron ore mines in Lorraine; the evolution of exploitation techniques, which presents an excellent overview of the technical innovations in mining since 1840; and the conclusions relating to the future of the Lorraine mines. In 1991, only two mines remained in exploitation in France producing annually around 8.5 million tons of iron ore and employing about 1,200 people in Lorraine. Nevertheless, efforts are being made to prolong the life of these mines.

Namibia

63. The Ministry of Mines and Energy of Namibia informed UNCTAD that the country possesses a number of iron ore deposits, but no production is currently taking place because of low grade and small size of the deposits. The most recent study of Namibian iron ores was a PhD thesis made in 1986 entitled "Iron Formations and Associated Amphibolites in the Southern Part of the Damara Orogen of South West Africa/Namibia."

Oman

64. The Government of Oman informed UNCTAD that no study on iron ore had been carried out in that country.

Rwanda

65. The Ministry of Commerce, Industry and Handicrafts of Rwanda transmitted a summary of a study on Rwanda's iron ore deposits. In the pre-colonial, period iron ore was exploited and used for the fabrication of a number of tools. In 1975 an evaluation of iron ore resources was made and since then geological research continues. The most recent, concluded in 1987, described the three main deposits: (i) the magnetite Ngara deposits with 500,000 tons of reserves having an average of 65 per cent Fe; (ii) the deposits of Cyasenge et Kirwa with estimated reserves of 11 million tons of between 47 and 70 per cent Fe; and (iii) the Kabona, Mushongi and Nganzo deposits, which had not been qualitatively or quantitatively estimated.

Singapore

66. The Singapore Trade and Development Board informed UNCTAD that no study on iron ore had been carried out in Singapore.

South Africa

67. The Republic of South Africa transmitted a paper entitled: "The successful application of productivity and quality management ensures Sishen Iron Ore Marketing Survival". This paper was presented by Iscor Limited at the 7th International Iron Ore Symposium held in April 1991, under the auspices of Metal Bulletin. It describes the history and experience of

the Sishen Mines from the time of their discovery up to the modern operations of today. Iscor exploration activities passed through several different phases, in particular a major quality-control and improvement project implemented since 1984, responsible for maintaining the mine active until now. An addendum describes the pioneering experience of Iscor as regards the installation and operation of the COREX process "The COREX process at Iscor's Pretoria works". It was the first industrial plant to use this new smelting reduction technology to produce liquid iron using coal instead of coke, thereby reducing costs and alleviating the environmental burden of coke-making.

Switzerland

68. The Government of Switzerland informed UNCTAD that no recent Swiss study on iron ore or the iron and steel industry had been undertaken. Nevertheless, a copy of the Swiss statements presented at the "Comité mixte Suisse" (CECA), and at the OECD Steel Committee on "Developments of the Swiss steel sector in 1991 and prospects for 1992" were provided. Switzerland produced 1.1 million tons and consumed 1.9 million tons of crude steel in 1991, about 15% less than in 1990, as a result of the slowing down of the economy. No particular change was foreseen for 1992, although a slight recovery during the second half of the year was not ruled out.

United States of America

69. The new issue of Iron ore 1990 was published in April 1992 by the United States Department of the Interior, Bureau of Mines. While focusing on the recent developments of the iron ore industry in the United States, including its structure, legislation, etc, this study also presents a detailed analysis of the major factors influencing the world iron ore market, in particular a review of the most recent technological advances in exploration, mining, agglomeration and smelting.

Uruguay

70. The Ministry of Industry and Energy of Uruguay informed UNCTAD that since 1966 no study on iron ore or related matters had been issued in the country.

Venezuela

71. The Government of Venezuela provided comprehensive statistical information concerning the Venezuelan iron ore and iron and steel industry, during the period 1980 to 1991. Recent studies on iron ore included one prepared and presented by CVG Ferrominera Orinoco at the 1991 session of the Intergovernmental Group of Experts on Iron Ore, entitled: "The Master Investments Plans and Strategy for the 1990s".

Part III

SUMMARIES ON SPECIFIC TOPICS

A. Iron ore mining capacity and investments

72. UNCTAD's report "Review of the current market situation and outlook for iron ore - 1992" notes that many iron ore companies were embarking on ambitious expansion programmes at the same time, and that the slowing down of the market in 1992 might contribute to scale down some over-optimistic expansion plans. While a close monitoring of recent market developments indicated the need for some new investments in capacity, a highly selective choice, taking into account a realistic cost/benefits analysis and the comparative advantage of different projects, seemed imperative with a view to maintaining a balanced market in the interest of all. While 27 new projects were currently planned, only seven mine closures were under-way.

73. The "Iron Ore Report" of the United States Bureau of Mines, although it does not list iron ore production capacity for individual mines, presents a very informative survey in a table showing the principal iron ore mines in 1991 by country, company, mine and type of ore. As regards pellets, the Bureau undertakes an annual monitoring of world pelletizing capacity, this information is reproduced in table 1 below.

Table 1
Iron ore: World pelletizing capacity, by continent and country

	Number			Rate capacity (million metric tons) gross weight)
	Sites	Plants	Units	
North America:				
Canada	3	4	11	24.10
Mexico	5	6	6	9.50
United States	10	18	50	65.23
Total	**18**	**28**	**67**	**98.83**
South America:				
Argentina	1	1	4	1.00
Brazil	3	8	8	24.30
Chile	1	1	1	4.00
Peru	1	2	2	3.20
Venezuela	1	1	2	6.60
Total	**7**	**13**	**17**	**39.10**
Europe:				
Belgium-Luxembourg	1	1	1	.80
Czechoslovakia	1	1	1	.25
Netherlands	1	1	1	3.80
Norway	1	1	1	1.50
Sweden	3	3	4	10.40
Turkey	1	1	1	1.30
USSR *	7	13	NA	80.00
Yugoslavia	1	1	1	.60
Total	**16**	**22**	**NA**	**98.65**
Africa:				
Liberia	1	1	1	3.00
Morocco	1	1	1	.85
Nigeria	1	1	1	1.45
South Africa	1	1	1	.60
Total	**4**	**4**	**4**	**6.10**
Asia:				
Bahrain	1	1	1	4.00
China	4	4	NA	4.50
India	1	1	1	2.00
Iran (Islamic Rep. of)	1	1	1	2.50
Japan	1	2	2	4.40
Total	**8**	**9**	**NA**	**17.40**
Oceania:				
Australia	2	2	6	4.00
WORLD TOTAL	**55**	**78**	**NA**	**264.08**

NA = Not available
Source: Annual Report 1990 - Iron Ore, US Bureau of Mines, 1992.

* As of 24 December 1991, the name Russian Federation in place of the Union of Soviet Socialist Republics is to be used in the United Nations.

B. Evolution of demand and supply of iron ore or steel

74. During the twenty-fifth annual meeting of the International Iron and Steel Institute, held in Montreal in October 1991, the IISI secretariat presented a set of projections of steel demand to the year 2000. According to table 2, some growth can be expected in steel consumption of non-European Economic Community countries in western Europe, and in Australia and South Africa. This growth, together with that in the European Community, will counterbalance the decline in Japanese consumption such that the total consumption of industrialized countries is expected to stabilize around the 1990 level of 374 million metric tons.

Table 2

Apparent Steel Consumption - Industrialised Countries
(million metric tons crude steel)

	1990	1995	2000
North America	112	113	113
E E C	128	130	132
Japan	99	93	89
Others	35	37	40
Total	374	373	374

Source: IISI, 1991

75. In developing countries, IISI predicts that in Latin America steel consumption may reach 45 million tons by the year 2000, compared with 27 million tons in 1990. In developing Asia, steel consumption is likely to grow strongly, adding 30 million tons to the 1990 level and reaching 114 million tons by the end of the century. In the Middle East and Africa the development of steel demand will probably be more modest. Developing regions in total will by the year 2000 be consuming around 187 million tons of steel, as shown in table 3.

Table 3

Apparent steel consumption - Developing Countries
(million metric tons crude steel)

	1990	1995	2000
Latin America	27	37	45
Asia	84	98	114
Middle East	12	15	16
Africa	11	11	12
Total	134	161	187

Source: IISI, 1991

76. In China, steel consumption will continue to rise, reaching 85 million tons by the year 2000. However, in the former USSR and Eastern Europe, the specific consumption of steel products will be falling towards the levels typical of more efficient Western practice, and the yields of steel products from crude steel will also improve dramatically towards Western levels. In conclusion, IISI projects that world steel consumption by the year 2000 will be around 790 million metric tons, 15 million tons above the apparent consumption realised in 1990, despite a drop of more than 50 million tons in the countries of Eastern Europe in transition and the former USSR.

Table 4

Apparent steel consumption - World
(million metric tons crude steel)

	1990	1995	2000
Industrialised countries	374	375	374
Developing countries	134	161	187
Western world	508	534	561
Former USSR & East Europe	187	155	135
China & other CPEs	80	89	94
T o t a l	775	778	790

Source: IISI, 1991

C. Mining and environment

77. The international round-table conference on Mining and Environment organized by the Development Policy Forum of the German Foundation for International Development, and the United Nations Department of Technical Cooperation for Development, reached a compromise on a set of environmental guidelines.

78. It was agreed that sustainable mining under appropriate environmental guidelines be based on interaction between industry, Governments, non-governmental organizations and the public, directed towards optimizing economic development while minimizing environmental degradation. The part of the "Berlin Guidelines" specifically addressed to the mineral sector is reproduced below, as it might be of great interest to the iron ore mining industry:

"Governments, mining companies and the minerals industries should as a minimum:

1. Recognize environmental management as a high priority, notably during the licensing process and though the development and implementation of environmental management systems. These should include early and comprehensive environmental impact assessments, pollution control and other preventive and mitigative measures, monitoring and auditing activities and emergency response procedures.

2. Establish environmental accountability in industry and government at the highest management and policy-making levels.

3. Encourage employees at all levels to recognize their responsibility for environmental management and ensure that adequate resources, staff and requisite training is available to implement environmental plans.

4. Ensure the participation and dialogue with the affected community and other directly interested parties on the environmental aspects of all phases of mining activities.

5. Adopt best practices to minimize environmental degradation, notably in the absence of specific environmental regulations.

6. Adopt environmentally sound technologies in all phases of mining activities and increase the emphasis on the transfer of appropriate technologies which mitigate environmental impacts, including those from small-scale mining operations.

7. Seek to provide additional funds and innovative financial arrangements to improve environmental performance of existing mining operations.

8. Adopt risk analysis and risk management in the development of regulation and in the design, operation and decommissioning of mining activities, including the handling and disposal of hazardous mining and other wastes.

9. Reinforce the infrastructure, information systems service, training and skills in environmental management in relation to mining activities.

10. Avoid the use of such environmental regulations that act as unnecessary barriers to trade and investment.

11. Recognize the linkages between ecology, socio-cultural conditions and human health and safety, both within the workplace and the natural environment.

12. Evaluate and adopt, wherever appropriate, economic and administrative instruments such as tax incentive policies to encourage the reduction of pollutant emissions and the introduction of innovative technology.

13. Explore the feasibility of reciprocal agreements to reduce transboundary pollution.

14. Encourage long-term mining investment by having clear environmental standards with stable and predictable environmental criteria and procedures."

Annex

DIRECTORY OF RELEVANT INTERNATIONAL ORGANIZATIONS

For inquiries and acquisition of the publications listed in this bibliography, please contact directly the appropriate organization:

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